Robby Roto

GENERAL INSTRUCTIONS
FOR
ROBBY ROTO

INSTALLATION

1. Unlock and open the coin box door.

2. Remove four (4) "CABINET LEVELING LEGS" from inside the coin box.

3. Tip the cabinet to the side and remove the shipping cleats from its bottom.

   ° Locate the threaded holes - one in each corner - and install the "CABINET LEVELING LEGS" in them.

   ° Level the cabinet.

   ° When finished, the cabinet should be stable in the upright position.

4. Plug the game into a **standard** A.C. wall outlet **ONLY** .

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------WARNING------

Game MUST be
properly grounded.
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5. The power ON/OFF switch is located:

   ° UPRIGHT MODEL: On top of the cabinet toward the back.

   ° MINI MODEL: In the center of the cabinet back just below the rear access door.

   ° COCKTAIL TABLE MODEL: Underneath the cabinet on Player No. 2's side.

LINE VOLTAGE SAFETY INTERLOCK SWITCHES

Line voltage SAFETY INTERLOCK SWITCHES have been provided for your protection.   The locations of these SAFETY INTERLOCK SWITCHES are:

1. UPRIGHT MODEL: Inside the rear of the cabinet on the right side of the rear access door.   Inside the front access door opening on left side.

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2. MINI MODEL: Inside the rear of the cabinet on the right side of the rear
                              access door.

3. COCKTAIL TABEL MODEL: Inside the cabinet on the hinge side of the coin door.

When the cabinet access door(s) are secured in place, the SAFETY INTERLOCK SWITCH plunger(s)
are in a fully depressed condition. The game circuit can function normally.

When any cabinet access door(s) are opened, the SAFETY INTERLOCK SWITCH plunger(s) are in a
partially extended condition. This isolates the game circuit from the line voltage.

To restore power to the game circuit with the access door(s) open, gently pull the SAFETY
INTERLOCK SWITCH plunger(s) out to the fully extended condition. **THIS IS TO BE USED FOR
SERVICING THE GAME ONLY!**

SELF-TEST

A slide switch is provided to make the game run a "Self-Test" on itself. The SELF-TEST
SWITCH is located on the mounting bracket for the left hand coin meter on the back side of
the coin door.

To put the game into the Self-Test mode; turn the power on and slide the SELF-TEST SWITCH
to the ON position.

When in the Self-Test mode, the monitor screen will display the results of certain test
functions it has run on itself. (These will be discussed in more detail later.)

TO SERVICE THE CONTROL PANEL(S)

1. UPRIGHT MODEL:

   ° The control panel is held in place by three latches, one on the left side, one on the
     right side, and one in the center of the front of the cabinet.

     They are spring loaded to provide constant positive pressure on their latch plates.

     They can be reached through the coin door **AFTER turning power to the game off.**

     To release the latches, lift up and toward the center of the control panel.

     Once they are released, unhook them from their latch plates.

   ° To remove the control panel:

     Raise it up and tilt it toward you until you can see the cable behind it.

     Cradling the control panel between yourself and the cabinet, disconnect it from its
     cabling.

     The control panel is now free and can be removed.

° To reinstall the control panel(s), reverse this procedure.

2. MINI MODEL:

° The control panel is held in place by two latches, one on the right side and one on the left side of the cabinet.

They are spring loaded to provide constant positive pressure on their latch plates.

They can be reached through the coin door **AFTER turning power to the game off.**

To release the latches, lift up and toward the center of the control panel.

Once they are released, unhook them from their latch plates.

° To remove the control panel:

Raise it up and tilt it toward you until you can see the cable behind it.

Cradling the control panel between yourself and the cabinet, disconnect it from its cabling.

The control panel is now free and can be removed.

° To reinstall the control panel(s), reverse this procedure.

3. COCKTAIL TABLE MODEL:

° Each control panel is held in place by several screws, two on the inside of the cabinet and three along the bottom edge of the control panel.

Turn the power off to the game.

Open the coin box door and release the two latches on the inside of the cabinet up next to the table top.

CAUTION: The right hand latch is very close to the **HIGH VOLTAGE** on the monitor. BE **CAREFUL!!**

Once they're released, unhook them from their latch plates.

Grasp the table top in the center above the coin door lifting up and to the side to tilt it open.

CAUTION: Due to the weight of the monitor, **EXTREME CARE MUST** be taken when opening the cabinet.

Remove the screws which secure the control panel in place.

° To remove the control panel(s):
Disconnect it from its cabling.

The control panel is now free and can be removed.

° To reinstall the control panel(s), reverse this procedure.

REMOVAL OF THE MAIN-DISPLAY-GLASS AND/OR THE T.V. BEZEL ASSEMBLY

1. UPRIGHT MODEL:

   NOTE: In order to do this, the control panel **MUST** be removed first. See the "UPRIGHT
   MODEL" procedure.

   ° **Turn the power to the game off** and remove the control panel. This frees the main-dis-
   play-glass so it can be lifted up.

   ° By putting your finger in the hole in the middle of the main-display-glass support, you
   can lift it up and out.

   ° Loosen the screws which secure the T.V. bezel-glass-clamps in place.

   Move the clamps to the side and the bezel glass may be removed.

   Remove the above mentioned screws and the bezel with four bezel-glass-clamps may be re-
   moved.

   ° To reinstall the T.V. bezel asssembly and the main-display-glass, reverse this proce-
   dure.

2. MINI MODEL:

   NOTE: In order to do this, the control panel <u>MUST</u> be removed first. See the "MINI
   MODEL" procedure.

   ° **Turn the power off to the game** and remove the control panel.

   ° Remove the screws which secure the glass clamping plate.

   ° Lift out the glass clamping plate. This frees the main-display-glass so in can be
   lifted up.

   ° By putting your finger in the hole in the middle of the main-display-glass support, you
   can lift it up and out.

   ° Remove the screws which secure the T.V. bezel assembly and lift it out.

   NOTE: Use the hole in the center of the main-display-glass support to grasp it.

   ° Reverse this procedure to reinstall the T.V. bezel assembly and the main-display-glass.

3. COCKTAIL TABLE MODEL:

   NOTE: This may be done with the table top in the open or the closed position. If you decide to open the table top, **TURN THE POWER TO THE GAME OFF FIRST.**

   ° Remove the screws which secure the table top glass clamps in place.

   ° Remove the table top glass.

   ° Loosen the screws which secure the T.V. bezel-glass-clamps in place.

     Move the clamps to the side and the bezel glass may be removed.

     Remove the screws which secure the bezel assembly to the table top and the bezel with four bezel-glass-clamps may be removed.

   ° To reinstall the T.V. bezel assembly and the table top glass, reverse this procedure.

GAME VOLUME ADJUSTMENT CONTROLS

The game volume control pots are located on a panel: Upright model - mounted on the monitor skirt behind the coin box; Mini and Cocktail Table models - inside coin door mounted to right side of cabinet as you face coin door. For adjustment, they may be reached through the coin door on **ALL** models.

To make the sounds louder, turn the pots clockwise as you face them (   ).

To make the sounds **less** loud, turn the pots counterclockwise as you face them (   ).

VOLTAGE CONTROL POT

The voltage control pot is located on the Power Supply P. C. Board. It is pre-set at the factory and **SHOULD NOT** be tampered with at all **unless** the distributors service department is contacted first.

SELF-TEST

The Self-Test mode is a special mode for checking the game switches and computer functions. It is the easiest and best way to check for proper operation of the entire game.

NOTE: Putting the game into Self-Test **WILL NOT** cause it to **erase** any CREDITS already on it from its memory.

You may begin a Self-Test at any time by sliding the Self-Test switch to the "ON" position after the power to the game is on (once this occurs, there is no way out of the Self-Test mode except to go through all the Test Displays). When this is done, the game will react as follows:

1. In the First Test Display, you will see vertically striped curtains which go from the top of   the   screen   to   the   bottom.

2. There is no Second Test Display unless there is a malfunction of the last RAM chip on the ROM/RAM Board.

SPECIAL NOTE: IF EITHER THE **FIRST** OR **SECOND** TEST DISPLAY IS BAD THIS WOULD MEAN THAT THE GAME IS NOT CAPABLE OF COMPLETING THE SELF-TEST ON ITSELF. THE BAD INDICA-TIONS YOU WOULD GET ARE AS FOLLOWS:

° First Test Display: if bad, the monitor screen will lock up with alter nating black and white **DIAGONAL** lines. This means that the first ROM (IN SOCKET X1) on the ROM/RAM Board is bad.

° Second Test Display: if bad, the monitor screen will lock up with alter nating red and black **DIAGONAL** lines. This means that the last RAM (IN SOCKET X24) on the ROM/RAM Board is bad.

BOTH OF THE ABOVE CHIPS **MUST** BE GOOD IN ORDER FOR THE GAME TO BE ABLE TO CONDUCT A SELF-TEST ON ITSELF. IF BAD, REPLACE THEM **ONLY** WITH CORRESPOND-ING CHIPS AS CALLED OUT IN THE PARTS LIST OF THIS MANUAL.

5. The Thrid Test Display has the numbers 1, 2, 3, and 4 written down the left side of the monitor screen.

If nothing is written out beside the numbers 1, 2, 3, and 4, they are O.K. 5 is a sound mode ONLY (for purposes of volume adjustment) and provides no diagnostic type informa tion.

° "1" checks the Screen RAM - If no good - "BAD" is written out beside this number.

° "2" checks the Write Protect RAM - If no good - one or more of the following numbers is written out beside this number: 12345678. These numbers tell what is wrong with the Write Protect RAM test.

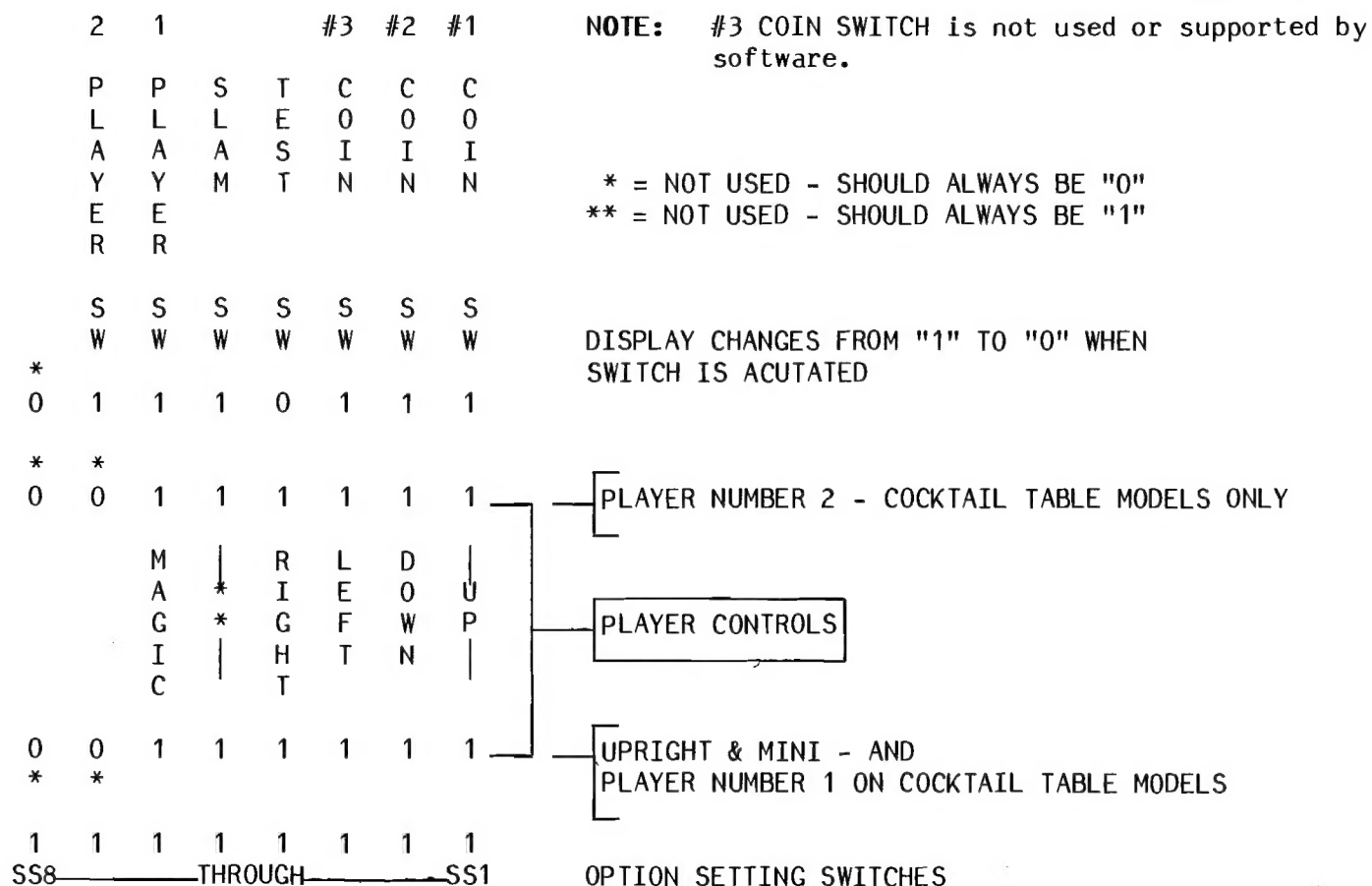|		
1	=	testram high did not zero
2	=	testram low did not zero
3	=	testram high did not set
4	=	testram low did not set
5	=	testram high zeroed and should not have
6	=	testram low zeroed and should not have
7	=	scratch ram next to write protect did not set and should have
8	=	scratch ram next to write protect did not zero and should have

The meaning of the RAM tests is this: If Write Protect tests 1, 2, 3, and/or 4 fail, X21 should also fail. If Write Protect tests 5 or 6 fail, Write Protect is not ena-bled. If **ONLY** Write Protect test number 6 fails, Write Protect is not covering enough memory. If Write Protect tests 7 or 8 fail, Write Protect is covering too much memory - which should also show an X21 failure reading.

° "3" checks the Scratch/Battery Back Up RAM - If no good - one or more of the following numbers is written out beside this number: X21, X22, X23, or X24 - depending on which RAM is bad. These numbers tell which socket the bad RAM is in on the ROM/RAM board.

° "4" checks ROMs "B, C, D, E, F, G, H, J, and K" - If no good - Their respective let-ter(s) is written out beside this number.

4. If a bad ROM or RAM chip is found by the games internal check system during the Self-Test, the game indicates this to you by showing the location code of the bad chip(s) to the right of the check number. The following table translates the chip location codes into actual positions on the various P.C. Boards.

DISPLAY	DESCRIPTION
WHITE & BLACK DIAGONAL STRIPES	ROM located on ROM/RAM board at position X1 is bad.
RED & BLACK DIAGONAL STRIPES	RAM located on ROM/RAM board at position X24 is bad.
1 BAD	CHECK BOTH RAM BOARDS FOR MALFUNCTIONING PART(S).
2 1 2 3 4 5 6 7 8	RAM located on ROM/RAM board at position X21 is bad.
3 X21, X22, X23, X24	CHECK RAMS AT INDICATED POSITIONS ON ROM/RAM BOARD.
4 B	ROM located on ROM/RAM board at position X2 is bad.
4 C	ROM located on ROM/RAM board at position X3 is bad.
4 D	ROM located on ROM/RAM board at position X4 is bad.
4 E	ROM located on ROM/RAM board at position X5 is bad.
4 F	ROM located on ROM/RAM board at position X6 is bad.
4 G	ROM located on ROM/RAM board at position X7 is bad.
4 H	ROM located on ROM/RAM board at position X8 is bad.
4 J	ROM located on ROM/RAM board at position X9 is bad.
4 K	ROM located on ROM/RAM board at position X10 is bad.

° "5" is a sound mode to enable the operator to adjust the games sound levels. The games program automatically sets the tones emitted at half volume at the begining of this mode.

5. You advance to the next Test Display by pressing the 1 and 2 Player Buttons at the SAME time.

6. During the Player Input Test Display the game will give a display which looks like a small square made up of "1's" and "0's".

```
      2  1           #3 #2 #1     NOTE:   #3 COIN SWITCH is not used or supported by
                                            software.
      P  P  S  T  C  C  C
      L  L  L  E  O  O  O
      A  A  A  S  I  I  I
      Y  Y  M  T  N  N  N           * = NOT USED - SHOULD ALWAYS BE "0"
      E  E                         ** = NOT USED - SHOULD ALWAYS BE "1"
      R  R

      S  S  S  S  S  S  S
      W  W  W  W  W  W  W          DISPLAY CHANGES FROM "1" TO "0" WHEN
*                                  SWITCH IS ACUTATED
0     1  1  1  0  1  1  1

*  *
0  0  1  1  1  1  1  1 ──┐── PLAYER NUMBER 2 - COCKTAIL TABLE MODELS ONLY
      M  |  R  L  D  |
      A  *  I  E  O  U          ┌─────────────────┐
      G  *  G  F  W  P          │ PLAYER CONTROLS │
      I  |  H  T  N  |          └─────────────────┘
      C     T
0  0  1  1  1  1  1  1 ──┘── UPRIGHT & MINI - AND
*  *                         PLAYER NUMBER 1 ON COCKTAIL TABLE MODELS

1  1  1  1  1  1  1  1
SS8 ──────THROUGH──────SS1     OPTION SETTING SWITCHES
```

° In this category, each of the games player operated controls - including the coin switches on the back side of the coin door and the option switches located on the Game Board - may be checked individually. A "1" means that that particular switch is in the open condition and a "0" means that that particular switch is in the closed condition.

7. You advance to the next Test Display by pressing the 1 and 2 Player Buttons at the SAME time.

8. During the Setup Options Test Display the game will show you all the options that can be set from the games front control console.

° In this category, all common game options may be changed from the control console: coins per credit and difficulty level.

° The Difficulty Level setting has a range of 1 to 9 with 1 being the easiest and 9 being the most difficult. Three (3) is the factory recommended game setting.

The value of the Difficulty Level may be increased by pushing forward on the control stick or decreased by pulling backward on the control stick.

° Push the 1 and 2 Player Buttons at the SAME time to move between subdivisions of this category.

Upon reaching the last subdivision, hesitation of about 2 seconds will cause the cursor to cycle back to the first catagory of the subdivisions (DIFFICULTY LEVEL).

° The Coins and Credits may be adjusted respectively by pushing the One Player Button to select the left hand figure (coins) and then pushing forward on the control stick to increase this figure or pulling backward on the control stick to decrease the figure. By pushing the Two Player Button to select the right hand figure (credits), you may ad just it in the same manner as stated above.

° Push the 1 and 2 Player Buttons at the SAME time to select the last subdivision in this category and then **QUICKLY** press them both again to advance to the next Test Display.

9. The next Test Display is a cross hatch pattern which can be used for various alignment procedures. This pattern will stay on the monitor screen until you advance to the next Test Display.

10. You advance to the next Test Display by pressing the 1 and 2 Player Buttons at the SAME time.

11. The next, and last, Test Display is a color bar display showing Green, Red, Blue, and Yellow on the left side of the monitor screen and Black, Dark Gray, Light Gray, and White on the right side of the monitor screen.

° Again, this pattern will remain on the monitor screen until you press both the 1 and 2 Player Buttons at the same time.

° If you have turned the Self-Test switch to the "OFF" position before pressing the 1 and 2 Player Buttons, normal game functions will return to the monitor screen.

° If you **HAVE NOT** turned the Self-Test switch to the "OFF" position before pressing the 1 and 2 Player Buttons, normal game functions **WILL NOT** return to the monitor screen. The game will return to the First Test Display.

	SW#1	SW#2	SW#3	SW#4	SW#5	SW#6	SW#7	SW#8
ROTO								
OPTION SWITCH SETTINGS								
///////LOCATED ON GAME BOARD///////								
NORMAL OPERATION FULL RESET	OFF ON				NOT USED	NOT USED	NOT USED	NOT USED
OPTIONS ADJUSTABLE FROM GAMES CONTROL PANEL OPTIONS RETURN TO FACTORY RECOMMENDED SETTINGS		OFF ON						
NORMAL PLAY FREE PLAY			OFF ON					
UPRIGHT AND MINI COCKTAIL TABLE **ONLY**				OFF ON				

THE REMAINDER OF ROTO's MOST COMMON OPTION SETTINGS ARE ADJUSTED
DURING THE SELF-TEST MODE AND IS COVERED IN DETAIL
IN THAT SECTION OF THESE INSTRUCTIONS.